

The Knowledge Bank at The Ohio State University
Ohio State Engineer

Title: Back Matter

Issue Date: Nov-1924

Publisher: Ohio State University, College of Engineering

Citation: Ohio State Engineer, vol. 8, no. 1 (November, 1924), 29-32.

URI: <http://hdl.handle.net/1811/33660>

Appears in Collections: [Ohio State Engineer: Volume 8, no. 1 \(November, 1924\)](#)

Helps to Success

The Units of Equipment which Help, rather than Hinder, in the successful completion of any work, are those of correct design and careful building.

Units produced by The Hadfield-Penfield Steel Co., of Bucyrus, O., are so built and include—

Diesel Engines

Gasoline Locomotives

Clay Products and Cement Machinery

One Man Graders for Fordsons

Crawler Tracks for Fordsons

Manganese Steel—"ERA" Brand

DIESEL ENGINES—Produce as much power on one car of oil as can be developed from ten cars of coal under boilers. No shoveling of coal or ashes. One-tenth freight. Cost starts when work starts.

GASOLINE LOCOMOTIVES—Built in several sizes. Economic motive power at minimum cost. No skilled help. Low upkeep cost.

CLAY WORKING MACHINERY—Full equipment for making every product made of clay. Also cement machinery.

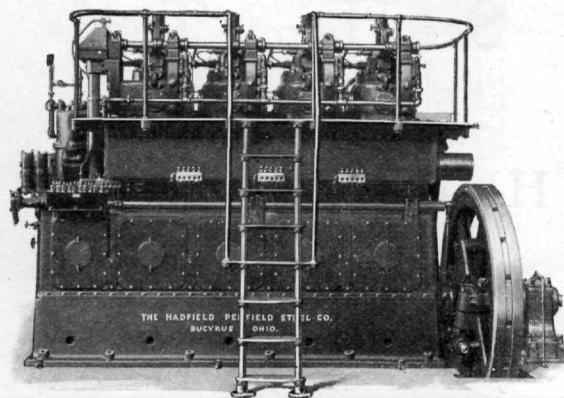
ONE MAN GRADER—Attaches to a Fordson in an hour. One man cuts grading cost to one-fourth. Grades, scrapes, ditches, removes snow.

CRAWLER TRACKS—Make a Crawler of any Fordson. Doubles its pulling power. Goes anywhere. Ford service and low upkeep.

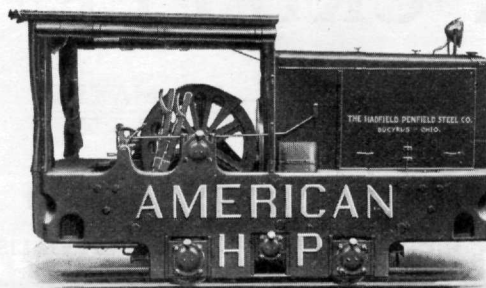
MANGANESE STEEL—For repair parts "ERA" brand has no equal. Extra life without extra cost.

We have other activities and invite correspondence.

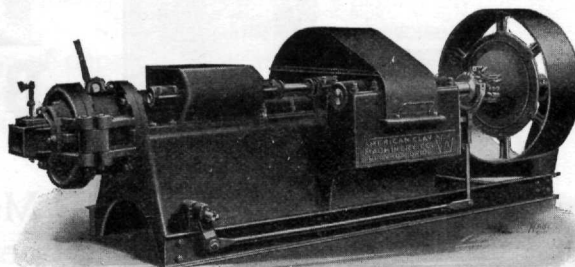
The Hadfield-Penfield Steel Co.
BUCYRUS, OHIO



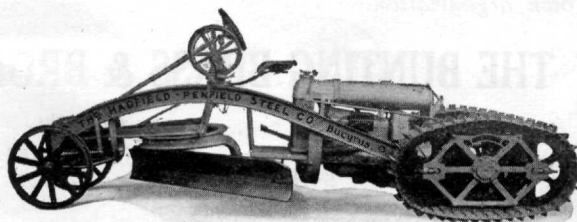
200 Horse Power Diesel Engine



Gasoline Locomotive



No. 290 Auger Brick Machine



One Man Grader and Crawler Tracks for Fordson
Can be used Separately or Together



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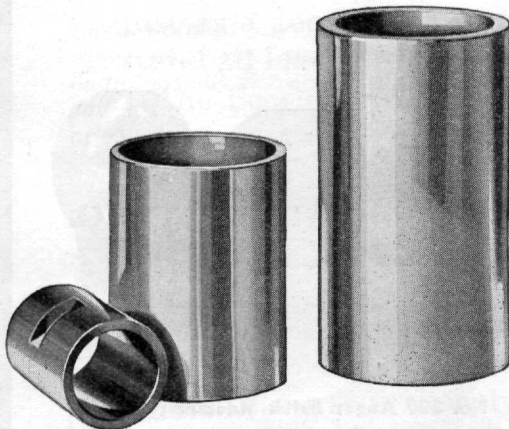
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SHOP LIGHTING.

In an address delivered before the members of the Western Pennsylvania Division of the National Safety Council, Pittsburgh, Pa., March, 1918, by C. W. Price, the importance of good lighting in industrial establishments was discussed, and the disadvantages of poor lighting were clearly shown by some figures mentioned by Mr. Price.

A large insurance company analyzed 91,000 accident reports, for the purpose of discovering the causes of these mishaps. It was found that 10% was directly traceable to inadequate lighting and in 13.8% the same cause was a contributory factor. The British Government in a report of the investigation of causes of accidents determined a close parallel to the findings of the insurance company above quoted. The British investigators found that by comparing the four winter months with the four summer months, there were 39.5% more men injured by stumbling and falling in winter than in summer.

Mr. John Calder, a pioneer in safety work, made an investigation of accident statistics covering 80,000 industrial plants. His analysis covered 700 accidental deaths, and of these 45% more occurred during the four winter months than during the four summer months.

Mr. C. L. Eschleman, in a paper published in the proceedings of the American Institute of Electrical Engineers several years ago, reported the result of an investigation of a large number of plants in which efficient lighting had been installed. He found that in such plants as steel mills, where the work is of a coarse nature, efficient lighting increased the total output 2%; in plants, such as textile mills and shoe factories, the output was increased 10%.

In an investigation of the causes of eye fatigue, made by the Industrial Commission of Wisconsin, it was found that in a large percentage of industries, such as shoe, clothing and textile factories, the lack of proper lighting (both natural and artificial) resulted in eye fatigue and loss of efficiency. At one knitting mill, where a girl was doing close work under improper lighting conditions, her efficiency dropped 50% every day during the hours from 2:30 to 5:30 P. M.

The above mentioned incidents indicate how important a factor lighting is in the operation of the industrial plant. It has been well said, "Light is a tool, which increases the efficiency of every tool in the plant." Glare or too much light is as harmful as not enough lighting, and in no case should the eyes of the workers be exposed to direct rays, either of sun or electric light.

Windows and reflectors should always be kept clean; that is, cleaning them at least once a week, for where dust and dirt are allowed to collect, efficiency of the light is decreased as much as 25%.

Good lighting, in addition to its other marked advantages, is a strong incentive towards keeping working places clean, for it clearly exposes any place where dirt or other material has been allowed to collect. White walls and clean windows glazed with Factrolite Glass will eliminate the sun glare and increase the illumination 25 to 50 feet from the window from 38% to 72% as compared with plain glass.

Lighting is of primary importance to every employer and fully warrants a careful investigation of the subject, for there is no substitute for good lighting, and if it is not supplied the efficiency of the entire working force must suffer a serious reduction.

If you are interested in the distribution of light through Factrolite, we will send you a copy of Laboratory Report—"Factrolited."

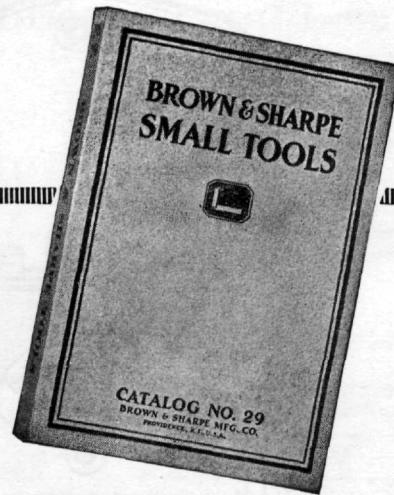
MISSISSIPPI WIRE GLASS CO.,

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A sound basis for accurate measurements

WHEN you stop to consider what machinists' tools mean to the various metal working industries, their importance becomes apparent.

In nearly every modern shop, precision tools are invaluable aids in reducing time. They permit metal products made by different manufacturers, to be assembled with unerring certainty and at greatly reduced cost.

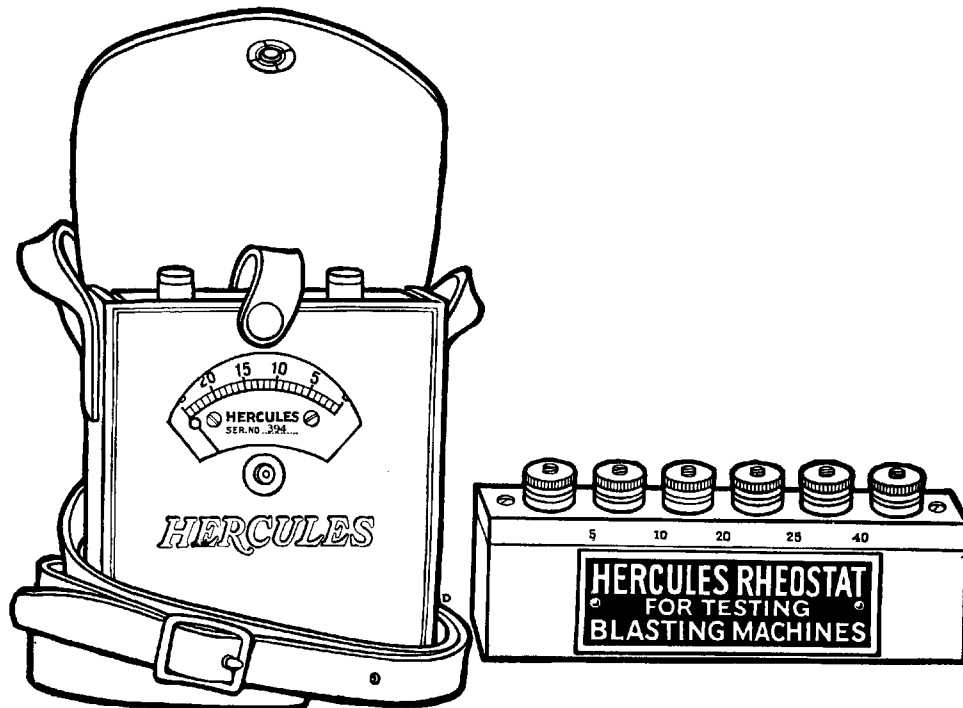
Sooner or later you will need to know about the different machinists' precision tools. Why not write for Brown & Sharpe Small Tool Catalog No. 29 and examine the line of 2000 tools—every one of importance in reducing time?

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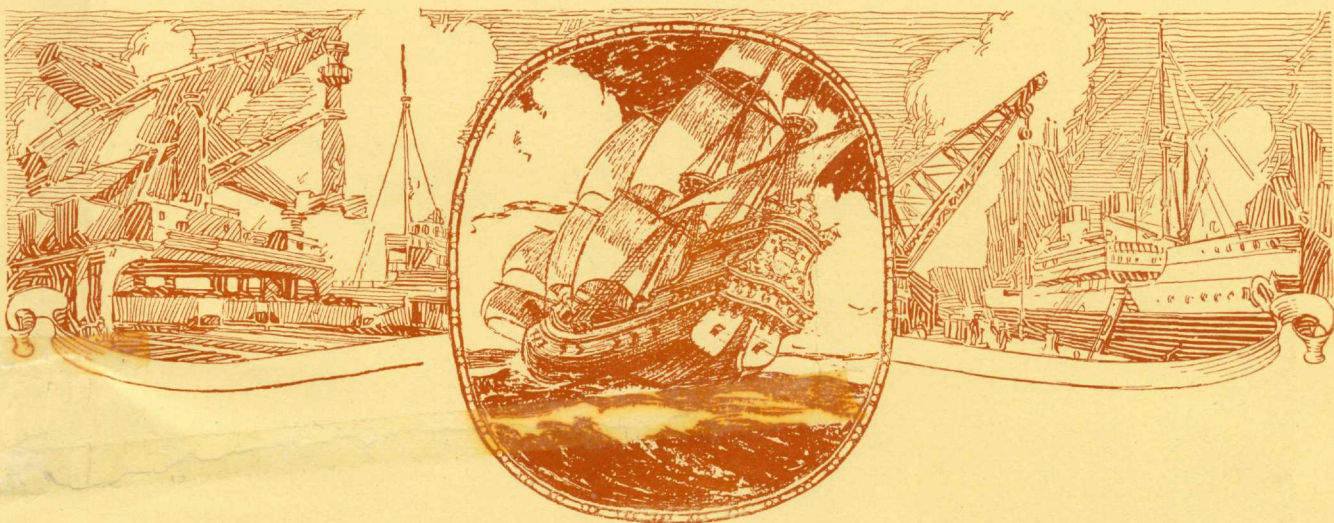
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Sailing West to India

SINCE the days of Christopher Columbus men have felt the call to "sail due west to find India". In an organization like Westinghouse, such pioneering spirits find happy haven as research engineers. Their every thought is a question—every energy bent to discover new and more effective answers to baffling problems.

Immediately Westinghouse began to build alternating current machines of high voltages, for example, the problem of insulation became acute. For thirty-five years high voltages and insulation have formed an endless chain of problems. As voltages have been increased, improved insulation has been demanded. As insulation has

been bettered, voltages have been still further increased.

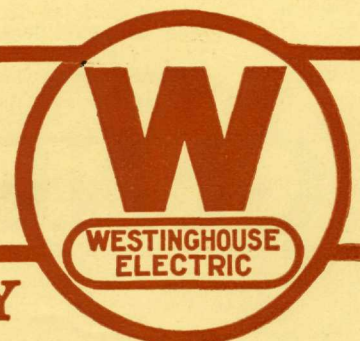
One striking contribution of Westinghouse research engineers has been the perfection of an entirely new insulation material—Micarta. Possessing many of the qualities of metal, paper, fiber, mica, gum, rubber, Micarta differs in radical respect from all of these.

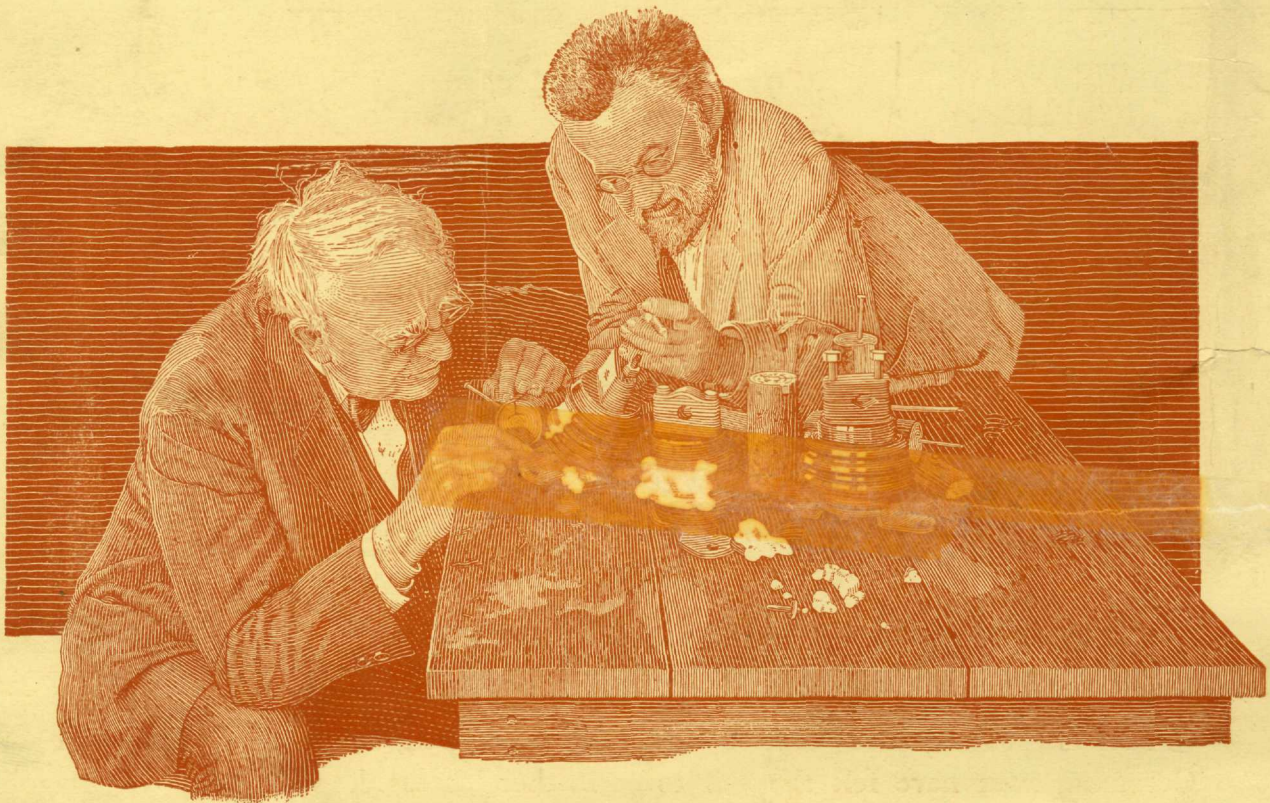
It serves industry indirectly as improved insulation material, and also directly because of superiorities when used for gears, propeller blades, and the like.

Only the imagination can set a limit on the field for the research engineer—or for an organization that centers around him.

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Steinmetz



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The spirit of Dr. Steinmetz kept his frail body alive. It clothed him with surpassing power; he tamed the lightning and discharged the first artificial thunderbolt.

Great honors came to him, yet he will be remembered not for what he received, but for what he gave. Humanity will share forever in the profit of his research. This is the reward of the scientist, this is enduring glory.

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